UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,772	04/01/2004	Nirmal Ramaswamy	MI22-2520	2790

21567 7590 11/27/2007

WELLS ST. JOHN P.S.
601 W. FIRST AVENUE, SUITE 1300
SPOKANE, WA 99201

EXAMINER	
KUNEMUND, ROBERT M	
ART UNIT	**PAPER NUMBER**
1792	

MAIL DATE	DELIVERY MODE
11/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,772	RAMASWAMY ET AL.	
	Examiner	Art Unit	
	Robert M. Kunemund	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-61 and 76-106* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-61 and 76-106* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 to 12, 16 to 19, 22, 22, 76 to 80, 83 to 85 and 93 to 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cui et al (2004/0010228) in view of Au et al (2001/0010228).

The Cui et al reference teaches a method of removing impurities forma reaction chamber, note entire reference. A substrate is placed in a chamber for silicon deposition. After the deposition the substrate is removed form the chamber. Then a plasma cleaning method cleans the chamber. The plasma is created in the chamber and etchant gases are fed to the chamber. The gases can be halogen based

compounds of fluorine and with nitrogen, note col. 7. The etchant gases clean the chamber of deposits from a silicon deposition method. The substrate can be cleaned of oxides prior to deposition, note cols. 1 and 4. The sole difference between the instant claims and the prior art is the cleaning of the transparent walls. However, the Au et al reference teaches using plasma cleaning methods to clean quartz walls in deposition chambers of impurities created in the deposition step, note col. 3. It would have been obvious to one of ordinary skill in the art to modify the Cui et al reference by the teachings of the Au et al reference to clean the quartz walls in order to allow for the walls to still be transparent aiding in deposition.

Claims 13 to 15, 81, 82 and 86 to 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cui et al (2004/0010228) in view of Au et al (2001/0010228).

The Cui et al and Au et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the etchant gas. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable etchant gases in the Cui et al reference in order to increase the rate of impurity removal.

Claims 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cui et al (2004/0010228) in view of Au et al (2001/0010228).

The Cui et al and Au et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the rotation of the substrate. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentation the optimum,

operable rotation of the substrate in the Cui et al reference in order to create a uniform deposition.

Claims 24 to 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cui et al (2004/0010228) in view of Au et al (2001/0010228) and Rhieu (5364667).

The Cui et al and Au et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the use of lamps. However, the Rhieu reference teaches using lamps during deposition and then plasma cleaning the chamber, note col. 2. It would have been obvious to one of ordinary skill in the art to modify the Cui et al reference by the teachings of the Rhieu reference to use lamps in order to create the desired deposition temperatures and rates.

Claims 23,62 to 75 and 99 to 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cui et al (2004/0010228) in view of Au et al (2001/0010228) and Rhieu.

The Cui et al, Rhieu and Au et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the electrode placement. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable electrode placement in the Cui et al reference in order to lower any impurities form the electrode that might enter the chamber.

Response to Applicants' Arguments

Applicant's arguments filed September 6, 2007 have been fully considered but they are not persuasive.

Applicants' argument concerning the deposition is the Coi et al reference is noted. However, at no point does the reference state that silicon dioxide is the only material deposited and considered to be part of the invention of Coi et al only. The reference refers to chemical vapor deposition and semiconductor formation. The reference is not limited in scope to examples. The teachings as a whole must be considered, at no point does the reference limit the process to silicon dioxide deposition only.

Applicants' argument concerning cleaning the chamber has been considered and not deemed persuasive. However, the combination of references does in fact teach the use of plasma to clean and remove materials from the deposition step. This includes the removal of native oxides. It is well known in the art to clean prior to deposition to remove native oxide formations. The combination does teach removing after deposition of even elemental silicon. Further, the gases and conditions used by the prior art would remove any native oxide on the chamber walls.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M. Kunemund whose telephone number is 571-272-1464. The examiner can normally be reached on 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert M. Kunemund
Primary Examiner
Art Unit 1792

RMK